

What is claimed is:

1. Method for supporting a web (1) during the post-processing of a web of paper or board, the method comprising the steps of:

5 - passing the web from a preceding section to at least one next downstream located web treatment section (4) wherein to at least one side of the web (1) is applied a treatment agent causing wetting of said side of said web, and

10 - passing the web (1) exiting said web treatment section to at least one dryer apparatus (8),

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c h a r a c t e r i z e d in that

20 - supporting the web (1) contactingly in a continuous and unbroken manner at least from said web treatment section (4) to said dryer (8).

2. Method according to claim 1, c h a r a c t e r - i z e d by comprising the steps of

25 - drying the web (1) with at least one drying apparatus (3) prior to passing the web to said web treatment section (4), and

30 - contactingly supporting the web in a continuous and unbroken manner at least from said drying apparatus (3) preceding said web treatment section (4) to said dryer apparatus (8) located downstream next to said web treatment section.

35 3. Method according to claim 2, c h a r a c t e r - i z e d in that the web (1) is supported by means of a dryer wire (2) of a paper- or board making machine.

4. Method according to claim 2 or 3, c h a r a c -
t e r i z e d in that the web is passed supported by a
continuous support element (2) at least from a drying
5 apparatus (3) preceding said web treatment section (4) to
the drying apparatus (8) located downstream next to said
web treatment section.

5. Method according to claim 2, c h a r a c t e r -
10 i z e d in that the web (1) is passed to at least one
downstream located web treatment section (4) supported by
the continuous support element of the upstream preceding
web treatment section.

6. Method according to claim 1, c h a r a c t e r -
15 i z e d in that the web (1) is passed supportedly and
only partially dried from an upstream preceding web
treatment section to the next downstream located web
treatment section.

20 7. Method according to claim 4, c h a r a c t e r -
i z e d in that the web (1) is supported by one and the
same support element (2) through said web treatment
section (4) and during the entire web travel through the
25 next downstream located drying apparatus (8).

8. Method according to claim 1, c h a r a c t e r -
i z e d in that the web (1) is supportedly passed from
the upstream preceding, web-wetting treatment section to
30 the next downstream located web treatment section and the
web is dried so that at least a portion of the moisture
content of the web is evaporated.

9. Method according to claim 6, c h a r a c t e r -
35 i z e d in that the web (1) is passed to said web treat-
ment section in a condition optimized with respect to the
requirements of the paper grade being manufactured, the

investment costs, the frequency of web breakages, the overall energy consumption of the process, desired paper quality or the like target variable.

5 10. Method according to claim 1, c h a r a c t e r -
i z e d in that the web is supported by means of a
support element against a member of the web treatment
apparatus, advantageously a film-transfer roll or blade
coater, that serves to apply a web-wetting agent to the
10 surface of the web.

11. Method according to claim 1, c h a r a c t e r -
i z e d in that the web is dried by a microwave dryer,
air-impingement dryer, contacting dryer, suction dryer or
15 the like dryer means, wherein the web is supported by a
member of a material suitable for resisting the impact of
said drying apparatus.

12. Method according to claim 1 or 11, c h a r a c -
20 t e r i z e d in that the web is supported by means of a
belt or surfaced belt or fabric that is impermeable to
moisture.

13. Method according to claim 1 or 11, c h a r a c -
25 t e r i z e d in that the web is supported by means of a
wire, fabric, porous felt or porous or perforated belt
that is permeable or absorbent to a liquid or gaseous
medium.

14. Method according to claim 1, c h a r a c t e r -
30 i z e d in that at least one surface of the web is
coated with a coating which is transferred with the help
of a movable member passing through an application nip or
area.

35 15. Method according to claim 14, c h a r a c t e r -
i z e d in that said application nip or area is formed

by a loading element such as a roll, belt or sliding shoe.

5 16. Method according to claim 1, c h a r a c t e r -
i z e d in that the web is supported in the first web
treatment section by air-jet support means, after which
the web is passed onto a contacting support element for
spreading the web, subjecting the same to measurement of
10 process qualities or supportingly passing the web to
subsequent web treatment sections.

17. Method according to claim 1, c h a r a c t e r -
i z e d in that the web is supported by a plurality of
successive support elements and the web (1) is trans-
15 ferred supportedly or guided by web guidance means (10)
from one support element (2) to the next support element
(11) in the succession.

20 18. Method according to claim 1 or 17, c h a r a c -
t e r i z e d in that the web is passed from one support
element to the next via web spreading or tension-
controlling means.

25 19. Method according to claim 1 or 15, c h a r a c -
t e r i z e d in that the web (1) is pressed against the
surface of at least one roll serving to form a nip and
apply a coating.

30 20. Method according to claim 1 or 15, c h a r a c -
t e r i z e d in that the web (1) is pressed against the
surface of at least one sliding shoe element serving to
form a nip and allowing a coat-applying planar element to
slide thereon.

35 21. Method according to claim 1, c h a r a c t e r -
i z e d in that a first side of the web is supported by
a movable continuous support element, while a coating is

applied to the second side of the web using, e.g., a spray-coating method, a jet-coating method, a blade/rod coater or an applicator roll coater.

5 22. Method according to claim 1 or 22, c h a r a c -
t e r i z e d in that the web is adhered to the support
element by means of air impingement or suction.

10 23. Method according to claim 1, 2, 4, 5, 6 or 8,
c h a r a c t e r i z e d by comprising the steps of

- passing the web to a predryer cylinder group
comprising at least one dryer cylinder and pressing
the web against the cylinder by means of a single-
15 wire support arrangement,

- supportedly passing the web to a treatment of the
first side of the web, said web treatment comprising
at least the application of a coating and the
20 spreading/tensioning of the web, and

- passing the web to a like treatment of its second
side and then by means of a single-wire support
arrangement to a postdryer group.

25 24. Method according to claim 1, c h a r a c t e r -
i z e d in that the web is supported by a succession of
support elements (2, 22, 24, 25, 11) whose surface
qualities are selected so that the adherence of the web
30 at the cross-over point of said support elements is
stronger to the downstream next, receiving support
element than to the upstream preceding, delivering
support element.

35 25. Method according to claim 24, c h a r a c t e r -
i z e d in that the web is supported by elements in
which the surface of the delivering support element is

more hydrophilic than the surface of the receiving support element.

5 26. Method according to claim 24, c h a r a c t e r -
i z e d in that the web is supported by elements in
which the surface of the delivering support element is
softer than the surface of the receiving support element.

10 27. Method according to claim 24, c h a r a c t e r -
i z e d in that the web is supported by elements in
which the surface of the delivering support element (24)
has a coarser texture than the surface of the receiving
support element (25).

15 28. Method according to claim 24, 25, 26 or 27, in which
method the web treatment device is a film-transfer
coater, c h a r a c t e r i z e d by comprising the
steps of

20 - passing the web (1) transferred on the support wire
(2) of the dryer to a first support element (22),

25 - passing the web (1) from said first support element
(22) onto the surface of a first film-transfer appli-
cator roll (24),

30 - passing the web supported by the outer circumferen-
tial surface of said first film-transfer applicator
roll (24) onto a second film-transfer applicator roll
(25), and

35 - passing the web supported by the outer circumferen-
tial surface of said second film-transfer applicator
roll (25) onto a next downstream located contacting
support element (11).

29. Method according to claim 1 or 24, c h a r a c -

t e r i z e d in that the web is supported by means of a movable element that can be, e.g., a metal, polymer, glass fiber or carbon fiber belt, wire, felt or web or band.

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30. Method according to claim 1, 15 or 24 c h a r -
a c t e r i z e d in that the web is supported in the
film-transfer coater by means of a support belt that
serves to transfer a web treatment agent to the surface
10 of the web.

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31. Assembly for supportedly guiding a web (1) during
the postprocessing of a web of paper or board, said
assembly comprising

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- at least one web treatment device (4),

- at least one device (3) preceding said web
treatment device,

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- elements (2) for passing the web (1) from said
preceding device (3) to at least one next downstream
located web treatment device (4) suited for applying
to at least one surface of the web (1) a treatment
25 agent that wets the web, and

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- elements for passing the web (1) to at least one
dryer (8) following said web treatment device,

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c h a r a c t e r i z e d by

- at least one support element (2) for passing the
web (1) in a continuous and unbroken manner at least
from said web treatment device to said next down-
stream located dryer.

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32. Assembly according to claim 31, c h a r a c t e r -

i z e d by

- at least one dryer (3) for drying the web prior to passing the web to said web treatment device (4), and

5 - a support element for contactingly supporting the web (1) in a continuous and unbroken manner at least from said dryer (3) preceding said web treatment device (4) to said dryer (8) located downstream next to said web treatment device.

10 33. Assembly according to claim 31, c h a r a c t e r - i z e d in that said element for passing the web (1) is a dryer wire (2) of a paper or boardmaking machine.

15 34. Assembly according to claim 31, c h a r a c t e r - i z e d by a single continuous support element (2) being used for passing the web in a supported manner at least from said dryer (3) preceding said web treatment device (4) to said dryer (8) located downstream next to said web treatment device.

20 35. Assembly according to claim 31, c h a r a c t e r - i z e d by a single continuous support element being used for passing the web (1) to at least one next downstream web treatment device from an upstream preceding web treatment device.

25 36. Assembly according to claim 35, c h a r a c t e r - i z e d by one and the same support element (2) being used for supporting the web (1) through said web treatment device (4) and during the entire web travel through the next downstream located dryer (8).

30 37. Assembly according to claim 31, c h a r a c t e r - i z e d by having at least one support element adapted to support the web (1) so as press the web against a

member of the web treatment section, advantageously a film-transfer roll or blade coater, that serves to apply a web-wetting agent to the surface of the web.

5 38. Assembly according to claim 31, c h a r a c t e r -
i z e d by at least one microwave dryer, air-impingement
dryer, contacting dryer, suction dryer or the like dryer
apparatus, wherein the web is supported by a member of a
material suitable for resisting the impact of said dryer.

10 39. Assembly according to claim 31 or 38, c h a r a c -
t e r i z e d in that said support element is a belt or
surfaced belt/fabric that is impermeable to moisture.

15 40. Assembly according to claim 31 or 38, c h a r a c -
t e r i z e d in that said support member is a fabric,
porous felt or porous/perforated belt that is permeable
or absorbent to a liquid or gaseous medium.

20 41. Assembly according to claim 31, c h a r a c t e r -
i z e d by at least one movable element capable of
defining at least one application nip or area in which
nip or area at least one surface of the web is coated
with a coating transferred with the help of said movable
25 member passing through said application nip or area.

42. Assembly according to claim 41, c h a r a c t e r -
i z e d by having said application nip or area defined
with the help of a loading element such as a roll, belt
30 or sliding shoe.

43. Assembly according to claim 31, c h a r a c t e r -
i z e d by a plurality of successive support elements
serving to support the web and to transfer the web (1)
35 supportedly or guided by web guidance means (10) from one
support element (2) to the next support element (11) in
the succession.

44. Assembly according to claim 31, c h a r a c t e r -
i z e d by means for supportedly pressing a first side
of the web against a movable continuous support element
5 and means for applying a coating to the second side of
the web using, e.g., a spray-coating method, a jet-
coating method, a blade/rod coater or an applicator roll
coater.

10 45. Assembly according to claim 31 or 44, c h a r a c -
t e r i z e d by air-impingement or suction means for
adhering the web to the support element.

15 46. Assembly according to claim 31, c h a r a c t e r -
i z e d in that the surface of the support element is
patterned with a desired surface texture serving to make
a desired surface or base coating pattern on the web side
to be treated.

20 47. Assembly according to claim 31, c h a r a c t e r -
i z e d by a succession of support elements (2, 22, 24,
25, 11) serving to support the web, said support elements
having their surface qualities so selected as to make the
adherence of the web at the cross-over point of said sup-
25 port elements stronger to the downstream next, receiving
support element than to the upstream preceding, deliver-
ing support element.

30 48. Assembly according to claim 47, c h a r a c t e r -
i z e d in that the surface of the delivering element is
more hydrophilic than the surface of the receiving
element.

35 49. Assembly according to claim 47, c h a r a c t e r -
i z e d in that the surface of the delivering element
(24) has a coarser texture than that of the surface of
the receiving element (25).

50. Assembly according to claim 47, c h a r a c t e r -
i z e d in that the surface of the delivering element
(24) is softer than the surface of the receiving element
5 (25).

51. Assembly according to claim 47, 48 or 49, in which
system said web treatment device is a film-transfer
coater, c h a r a c t e r i z e d by

10 - a support wire (2) of the dryer serving to pass the
web (1) to a first support element (22) on which the
web (1) is transferred onto the surface of a first
film-transfer applicator roll (24),

15 - a second film-transfer applicator roll (25) serving
to receive the web which has been transferred and
supported by the surface of the first film-transfer
applicator roll (24), and

20 - a next downstream located, contacting support
element (11) serving to receive the web (1) which has
been transferred and supported by the surface of the
second film-transfer applicator roll (25).

25 52. Assembly according to claim 30 or 47, c h a r a c -
t e r i z e d in that the web is supported by means of a
movable element that can be, e.g., a metal, polymer,
glass fiber or carbon fiber belt, wire, felt or web or
30 band.

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